BD|SENSORS
pressure measurement

DCT 532

Industrial
Pressure Transmitter
with i²C interface

Stainless Steel Sensor

Accuracy according to IEC 60770:
standard: ≤ ± 0.35 % FSO
option: ≤ ± 0.25 % FSO

Nominal pressure

from 0 ... 100 mbar up to 0 ... 400 bar

Digital output signal

- i²C
- bus frequency max. 400 kHz
- configuration of data format
- interrupt signal

Special characteristic

► perfect thermal behaviour

► excellent long term stability

Optional versions

► pressure port
  G 1/2" flush up to 40 bar

► welded sensor

► customer specific versions

Contrary to the industrial pressure transmitter with analogue signal, the DCT 532 has a digital i²C-interface. i²C has a master-slave topology, whereby you can use up to 127 devices at one master. In addition to the typical settings, as slave address, data format, etc., it is possible to do special parametrisation for pressure unit and more.

Due to the usage of high quality materials and components, the DCT 532 is suitable for almost every industrial application, if medium is compatible with stainless steel 316L.

The modular concept of the pressure transmitter allows customized electrical or mechanical connections, so it is easy to adapt the pressure transmitter to different conditions on-site.

Preferred areas of use are

Plant and machine engineering

Energy industry

CE   ROHS ✓   REACH ✓   c(UL)us LISTED   I²C BUS

Input pressure range

Nominal pressure gauge	[bar]	-1…0	0.10	0.16	0.25	0.40	0.60	1	1.6	2.5	4	6
Nominal pressure abs.	[bar]	-	-	-	-	0.40	0.60	1	1.6	2.5	4	6
Overpressure	[bar]	5	0,5	1	1	2	5	5	10	10	20	40
Burst pressure ≥	[bar]	7.5	1.5	1.5	1.5	3	7.5	7.5	15	15	25	50

Nominal pressure gauge / abs.	[bar]	10	16	25	40	60	100	160	250	400
Overpressure	[bar]	40	80	80	105	210	600	600	1000	1000
Burst pressure ≥	[bar]	50	120	120	210	420	1000	1000	1250	1250
Vacuum resistance		P_N ≥ 1 bar: unlimited vacuum resistance P_N < 1 bar: on request								

Output signal / Supply

i²C	V_S = 3.5 ... 5.5 V_{DC}

Performance

Accuracy [1]	standard for P_N ≥ 0.4 bar: ≤ ± 0.35 % FSO standard for P_N < 0.4 bar: ≤ ± 0.5 % FSO option for P_N ≥ 0.4 bar: ≤ ± 0.25 % FSO
Max. I/O current	10 mA
Long term stability	≤ ± 0.1 % FSO / year at reference conditions
Response time	1.5 msec + transmission time (depending on bus frequency)
Measuring rate	500 Hz

[1] accuracy according to IEC 60770 – limit point adjustment (non-linearity, hysteresis, repeatability)

Thermal effects (Offset and Span)

Nominal pressure P_N	[bar]	-1 … 0	< 0.40	≥ 0.40
Tolerance band	[% FSO]	≤ ± 0.75	≤ ± 1	≤ ± 0.75
in compensated range	[°C]	-20 ... 85	0 ... 70	-20 … 85

Permissible temperatures

Permissible temperatures	medium: -25 ... 125 °C electronics / environment: -25 ... 85 °C storage: -40 ... 85 °C

Electrical protection

Short-circuit protection	permanent
Reverse polarity protection	by exchanged supply connections no damage, but also no function by exchanged communication with signal lines it can come according to constellation to damages.
Electromagnetic compatibility	emission and immunity according to EN 61326

Mechanical stability

Vibration	10 g RMS (25 ... 2000 Hz) according to DIN EN 60068-2-6
Shock	500 g / 1 msec according to DIN EN 60068-2-27

Materials

Pressure port / Housing	stainless steel 1.4404 (316 L)
Seals (media wetted)	standard: FKM options: EPDM welded version [2] (for P_N ≤ 40 bar) others on request
Diaphragm	stainless steel 1.4435 (316 L)
Media wetted parts	pressure port, seal, diaphragm

[2] welded version only with pressure ports according to EN 837, P_N ≤ 40 bar

Miscellaneous

Current consumption	< 15 mA
Weight	approx. 140 g
Ingress protection	IP 67 / IP 68 for cable with ventilation tube
Installation position	any [3]
Operational life	100 million load cycles
CE-conformity	EMC Directive: 2014/30/EU Pressure Equipment Directive: 2014/68/EU (module A) [4]

[3] Pressure transmitters are calibrated in a vertical position with the pressure connection down. If this position is changed on installation there can be slight deviations in the zero point for pressure ranges P_N ≤ 1 bar.

[4] This directive is only valid for devices with maximum permissible overpressure > 200 bar

Wiring diagrams
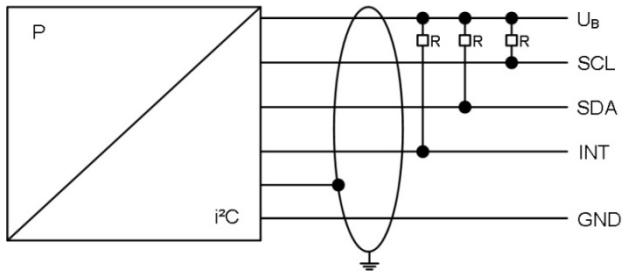
Pin configuration

Electrical connection		M12x1 / metal (5-pin)	Binder 723 (5-pin)	cable colour (IEC 60757)
	Supply +	1	1	WH (white)
	Supply –	3	3	BN (brown)
	SDA	2	2	YE (yellow)
	SCL	4	4	GN (green)
	INT	5	5	PK (pink)
Shield		housing	housing	GNYE (green-yellow)

Electrical connections (dimensions in mm)
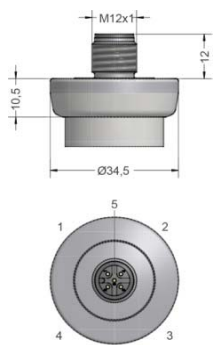
Standard

Optional

M12x1 5-pin
(IP 67)
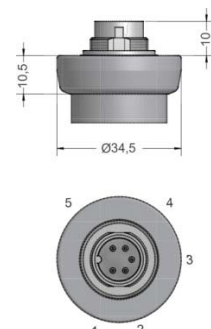
Binder Serie 723 5-pin
(IP 67)
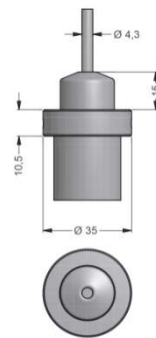
cable outlet with PVC cable
(IP 67) [5] (on request)
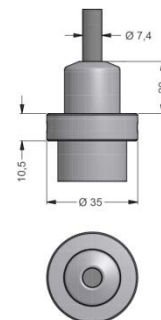
cable outlet, cable with ventilation tube
(IP 68) [6] (on request)

[5] standard: 2 m PVC cable without ventilation tube (permissible temperature: -5 ... 70°C)
[6] different cable types and lengths available, permissible temperature depends on kind of cable

Mechanical connections (dimensions in mm)

standard
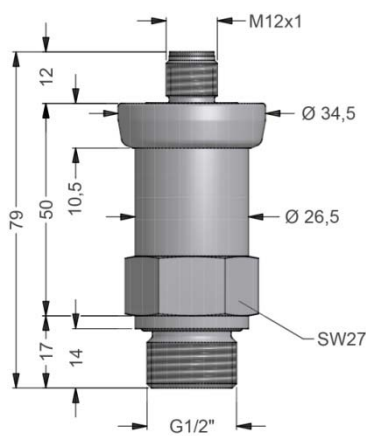
G1/2" DIN 3852
with ISO 4400

Mechanical connections (dimensions in mm)

option

G 1/4" DIN 3852

G1/2" DIN 3852 open port,
$P_N \leq 40$ bar

A (2:1)

G1/2" DIN 3852
with flush sensor, $P_N \leq 40$ bar

G1/2" EN 837

G1/4" EN 837

1/2" NPT

1/4" NPT

⇨ **metric threads and other versions on request**

Configuration i²C-interface

Stand configuration	0	5	0	-	0	-	0	-	0	-	0	-	0	0	0	0	1
Slave address																	
address	0	0	1														
		…															
	1	2	7														
Type of result register																	
32bit IEEE float					0												
16bit Integer					1												
Byte order of values																	
Low byte first							0										
High byte first							1										
Mode of result register																	
Value									0								
Percent of nominal									1								
Restore of address pointer																	
No restore											0						
To last set address on next start											1						
Digital meaning																	
Count of result													0	0	0	0	1
														…			
												1	0	0	0	0
Configuration code (has to be defined with the order)			-		-		-		-		-						

DCT 532 □□□-□□□□-□-□-□□□-□□□-□-□□□

Pressure

gauge	D	C	0
absolute [1]	D	C	1

Input

[bar]							
0.10 [1]		1	0	0	0		
0.16 [1]		1	6	0	0		
0.25 [1]		2	5	0	0		
0.40		4	0	0	0		
0.60		6	0	0	0		
1.0		1	0	0	1		
1.6		1	6	0	1		
2.5		2	5	0	1		
4.0		4	0	0	1		
6.0		6	0	0	1		
10		1	0	0	2		
16		1	6	0	2		
25		2	5	0	2		
40		4	0	0	2		
60		6	0	0	2		
100		1	0	0	3		
160		1	6	0	3		
250		2	5	0	3		
400		4	0	0	3		
-1 … 0		X	1	0	2		
customer		9	9	9	9		consult

Output

i²C	IC	

Accuracy

standard for p_N ≥ 0.4 bar	0.35 % FSO	3	
standard for p_N < 0.4 bar	0.5 % FSO	5	
option for p_N ≥ 0.4 bar	0.25 % FSO	2	
	0.1 % FSO	1	consult
	customer	9	consult

Electrical connection

male plug M12x1 (5-pin) / metal	N	1	7	
male plug Binder series 723 (5-pin)	2	0	7	
cable outlet with PVC cable (IP67) [2]	T	A	0	
cable outlet, cable with ventilation tube (IP68) [3]	T	R	0	
customer	9	9	9	consult

Mechanical connection

G1/2" DIN 3852	1	0	0	
G1/2" EN 837	2	0	0	
G1/4" DIN 3852	3	0	0	
G1/4" EN 837	4	0	0	
G1/2" DIN 3852 with flush sensor [4]	F	0	0	
G1/2" DIN 3852 open pressure port [4]	H	0	0	
1/2" NPT	N	0	0	
1/4" NPT	N	4	0	
customer	9	9	9	consult

Seals

FKM	1	
EPDM	3	
without (welded version) [5]	2	
customer	9	consult

Special version

standard	0	0	0	
customer	9	9	9	consult

[1] absolute pressure possible from 0.4 bar
[2] standard: 2 m PVC cable without ventilation tube (permissible temperature: -5 ... 70 °C); others on request
[3] code TR0 = PVC cable, cable with ventilation tube available in different types and lengths
[4] not possible for nominal pressure p_N > 40 bar
[5] welded version only with pressure ports according to EN 837, possible for p_N ≤ 40 bar

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